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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/754,597	01/12/2004	Yoshifumi Takeyama	03560.003426.	8030

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EXAMINER	
MOWLA, GOLAM	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
06/26/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/754,597	TAKEYAMA ET AL.	
	Examiner	Art Unit	
	GOLAM MOWLA	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/29/2009 has been entered.

Response to Amendment

2. Applicant's amendment of 04/29/2009 does not place the Application in condition for allowance.

3. Claims 1-14 are currently pending. Applicant has amended claims 1, 10 and 14.

Status of the Objections or Rejections

4. Due to Applicant's amendment of claim 1, 10 and 14, the rejection of claims 1-14 from the office Action mailed on 01/29/2009 is withdrawn. However, upon further consideration, a new ground(s) of rejection is/are presented below.

Claim Rejections - 35 USC § 102

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 10-11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiotsuka et al. (US 6121542, hereafter Shiotsuka '542).

Regarding claim 10, Shiotsuka '542 discloses a method for manufacturing a photovoltaic element plate (201) (fig. 2a; col. 6, lines 40-56), an insulating member (insulating coating material such as urethane resin or other thermoplastic resin in electrically conductive adhesive 206; col. 12, lines 34-44) provided on the photovoltaic element plate (201), a coating film (adhesive body 202 comprising polymer film 203 interposed between two adhesive materials 204) (fig. 2a; col. 6, lines 45-47) provided on an area of the photovoltaic element (201) on which the insulating member (206) is not provided (see fig. 2a which shows the insulating member 206 is not provided throughout the coating film, i.e., not on the left and right sides), and an electrode (207) formed on the insulating member (206), comprising:

- a step of forming the coating film (202) on a light receiving face (top face) of the photovoltaic element plate (201) by applying the coating film (202) thereon; and
- a step of heating (heat treatment; col. 10, lines 58-64) the coating film (202) for curing while a part (the adhesive material 204 which is in contact with the insulating member 206) thereof in direct contact with the insulating member (206) (fig. 2a; col. 6, lines 47-50) (202 direct contacts 206 as shown in fig. 2a) is being maintained such that it has a thickness smaller than the average thickness of the coating film (202) (the insulating member 206 is embedded in the coating film 202 thereby reduces the thickness of the specific portion on which the insulating member is embedded; see fig. 2a and col. 6, lines 53-56).

With respect to claim 11, Shiotsuka '542 further discloses that the method further comprises a step of coating a side surface of the insulating member (outer surface of conductive adhesive 206 which includes insulating material and contacts adhesive material 204; col. 12, lines 34-44) with an agent (with adhesive material 204; see fig. 2a) which causes the side surface of the insulating member to have a low wettability to a coating material (adhesive material 204) (the coating material is made of silicone resin as shown in col. 10, lines 55-57, which has low moisture absorption, i.e., low wettability) contained in the coating film (202), wherein the side surface of the insulating member is located at a side of the insulating member which is brought into contact with the coating film (at the lower portion of electrode 205 which is in contact with the coating film 202, more specifically with the adhesive material 204 of the coating film 202; see fig. 2a).

With respect to claim 13, Shiotsuka '542 further discloses that the method further comprises a step of forming an insulating member (the insulating material of the conductive adhesive 206; col. 12, lines 34-44) of the electrode portion by slitting a tape (the adhesive 206 which is cut at the top surface that contacts the bus bar 207; see fig. 2a) comprising a base plate (the outer surface of 206 which contacts 207), wherein the base plate and a side surface (outer surface of conductive adhesive 206 which contacts the adhesive material 204; see fig. 2a) of the insulating member comprise an agent (insulating material such as thermoplastic resin; col. 12, lines 34-44) which causes the side surface of the insulating member to have a low wettability to a coating material (adhesive material 204) contained in the coating film (202), and wherein the side surface of the insulating member is located at a side of the insulating member which is

brought into contact with the coating film (at the lower portion of electrode 205 which is in contact with the coating film 202, more specifically with the adhesive material 204; see fig. 2a).

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1, 3-9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiotsuka '542.

Regarding claim 1, Shiotsuka '542 discloses a photovoltaic cell (see fig. 2a, col. 6, lines 40-56) comprising:

- a photovoltaic element plate (201) (fig. 2a; col. 6, lines 40-45);
- an insulating member (insulating coating material such as urethane resin or other thermoplastic resin in electrically conductive adhesive 206; col. 12, lines 34-44) provided on the photovoltaic plate element (201);
- a coating film (adhesive body 202 comprising polymer film 203 interposed between two adhesive materials 204) (fig. 2a; col. 6, lines 45-47) provided on the photovoltaic element plate (201) on which insulating member (206) is not provided (see fig. 2a which shows the insulating member 206 is not provided throughout the coating film, i.e., not on the left and right sides); and
- an electrode (207) formed on the insulating member (206);

- wherein the insulating member (206) has a thickness (inherently) and a the coating film (202) has a specific thickness (the thickness of the coating film is 0.225 mm; see col. 10, lines 3-13), and
- a thickness of a part of the coating film (the portion of 202 on which 205+206 is disposed) which is in direct contact with the insulating member (direct contact with 206 as shown in fig. 2a) is smaller than the average thickness of the coating film (the insulating member 206 is embedded in the coating film 202 thereby reduces the thickness of the specific portion on which the insulating member is embedded; see fig. 2a and col. 6, lines 53-56).

The reference is silent as to whether the thickness of the insulating member (206) is larger than the average thickness of the coating film (202). However, it would have been obvious to one of ordinary skill in the art at time of the invention to have determined the optimum thickness of the insulating member (206) of Shiotsuka '542 by routine experimentation in order to efficiently collect a photovoltaic force (col. 12, lines 1-3), as desired by Shiotsuka '542. "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). MPEP § 2144.05 IIA.

Regarding claim 3, Shiotsuka '542 further discloses that the average thickness of the coating film is 0.225 mm (col. 10, lines 2-13).

Regarding claim 4, Shiotsuka '542 further discloses that the coating film (202) comprises a coating material (adhesive material 204) containing at least an acrylic resin (col. 10, lines 52-55).

Regarding claim 5, Shiotsuka '542 further discloses that the coating film comprises a coating material (adhesive material 204; col. 10, lines 42-64) and the electrode (207) comprises a conductive foil body (col. 13, lines 43-67).

Regarding claim 6, Shiotsuka '542 further discloses that the insulating member comprises an acrylic adhesive layer (col. 12, lines 41-44).

Regarding claim 7, Shiotsuka '542 further discloses that a part of the insulating member (insulating material such as urethane resin or other thermoplastic resin in electrically conductive adhesive 206; col. 12, lines 34-44) located at a position higher than the average thickness of the coating film (Examiner notes that 206 is disposed above the coating film 202 and thereby located at a higher position) has a low wettability to the coating material (adhesive material 204) (since the coating material 204 is made of silicone resin which as low wettability or low moisture absorption as shown in col. 10, lines 55-57, the insulating material in the conductive adhesive 206 will have low wettability to the coating material).

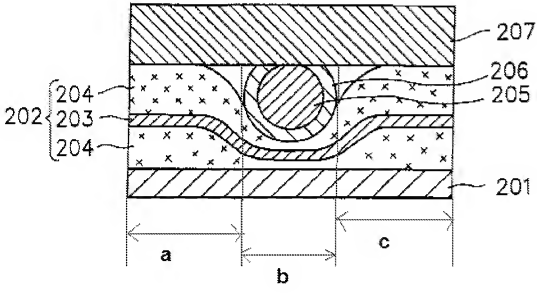
Regarding claim 8, Shiotsuka '542 further discloses that a side surface of the insulating member (outer surface of conductive adhesive 206 which includes insulating material) comprises an agent (thermoplastic resin; col. 12, lines 27-33 and 41-44) causing the side surface of the insulating member to have a low wettability to the coating material (adhesive material 204), the side surface of the insulating member

(206) being located at a side of the insulating member (206) which is in contact with the coating film (202).

Regarding claim 9, Shiotsuka '542 further discloses that the insulating member includes a base plate comprising the agent (the outer surface of 206 which comprises thermoplastic resin; col. 12, lines 27-33 and 41-44).

Regarding claim 14, Shiotsuka '542 discloses a photovoltaic cell (see fig. 2a, col. 6, lines 40-56) comprising:

- a photovoltaic element plate (201) (fig. 2a; col. 6, lines 40-45);
- an insulating member (insulating coating material such as urethane resin or other thermoplastic resin in electrically conductive adhesive 206; col. 12, lines 34-44) provided on the photovoltaic plate element (201);
- a coating film (adhesive body 202 comprising polymer film 203 interposed between two adhesive materials 204) (fig. 2a; col. 6, lines 45-47) provided on the photovoltaic element plate (201) on which insulating member (206) is not provided (see fig. 2a which shows the insulating member 206 is not provided throughout the coating film, i.e., not on the left and right sides); and
- an electrode (205) formed on the insulating member (206);



- wherein the insulating member (206) has a thickness (inherently) and a the coating film (202) has a specific thickness (the thickness of the coating film is 0.225 mm; see col. 10, lines 3-13), and
- a thickness of a part of the coating film (the portion of 202 on which 205+206 is disposed) which is in direct contact with the insulating member (direct contact with 206 as shown in fig. 2a) is smaller than the average thickness of the coating film (the insulating member 206 is embedded in the coating film 202 thereby reduces the thickness of the specific portion on which the insulating member is embedded; see fig. 2a and col. 6, lines 53-56),
- the electrode (205) is provided outside of a power generation region (outside of either a or c as shown in fig. above) of the photovoltaic element (201),

- the photovoltaic element (201) has collector electrodes (bus bar 207, col. 6, lines 51-52) on the power generation region (a or c), and
- the coating film (202) covers the power generation region (a or c) and the collector electrodes (204).

The reference is silent as to whether the thickness of the insulating member (206) is larger than the average thickness of the coating film (202). However, it would have been obvious to one of ordinary skill in the art at time of the invention to have determined the optimum thickness of the insulating member (206) of Shiotsuka '542 by routine experimentation in order to efficiently collect a photovoltaic force (col. 12, lines 1-3), as desired by Shiotsuka '542. "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). MPEP § 2144.05 IIA.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiotsuka '542 as applied to claim 1 above, and further in view of Nakamura et al. (US 6291763).

Applicant is directed above for complete discussion of claim 1 in view of Shiotsuka '542. Shiotsuka '542 further discloses that the coating film comprises a thermosetting coating material (thermoplastic resin; col. 12, lines 27-33 and 41-44), however is silent as to whether any of these thermosetting coating materials before curing has a viscosity in the range of from 1 to 50 mPa.s.

Nakamura discloses a photoelectric conversion device and photocell (col. 1; lines: 5-8) and further discloses coating material with a viscosity of I mPa.s (col. 7; lines

6-8). Nakamura teaches that the liquid viscosity is largely dependent on the kind and dispersibility of the semiconductor particles, the solvent, additives, and a binder in order to form a uniform film extrusion coating or casting (col. 7; lines: 4-9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a liquid viscosity of 1 mPa.s for the coating material as taught by Nakamura to the photovoltaic cell of Shiotsuka '542 in order to form a uniform film coating. In addition, the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiotsuka '542 as applied to claim 10 above, and further in view of Bearinger et al. (US 5611884).

Applicant is directed above for complete discussion of claim 11 in view of Shiotsuka '542. Shiotsuka '542 further discloses that the agent is a release agent (silicone resin; col. 10, lines 42-57), but silent to as to whether the agent is contained in a mixed solution at a concentration of 0.1 to 30 percent.

Bearinger discloses an adhesive material comprising an agent (silicone resin) mixed in a solution with at a concentration of 25.85% (col. 7, line 42 to col. 8, line 6) to allow for an adhesive material with good cohesive strength and excellent adhesion (col. 8, lines 4-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used the silicone resin of Bearinger contained in the

solution at a concentration of 25.85% in the method of Shiotsuka '542 to allow for good cohesive strength and excellent adhesion as taught by Bearinger.

Response to Arguments

11. Applicant's arguments with respect to claims 1-13 have been fully considered but they are not persuasive.

Applicant argues that none of Shiotsuka '542, Nakamura, Bearinger, and Shiotsuka '075, even in the proposed combinations disclose that the coating film with smaller thickness is in direct contact with the insulating member is equal to or smaller than the average thickness of the coating film as recited by claims 1, 10 and 14 (see Remarks, paragraph bridging pages 1 and 2).

The Examiner respectfully disagrees. Shiotsuka '542 discloses the claimed subject matter of claims 1, 10 and 14 as presented above.

Correspondence/Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GOLAM MOWLA whose telephone number is (571) 270-5268. The examiner can normally be reached on M-F, 0900-1700 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ALEXA NECKEL can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. M./
Examiner, Art Unit 1795

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1795